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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/982,666	10/18/2001	Dennis R. Trumble	AHS-15	7647

7590

07/01/2003

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EXAMINER

MACHUGA, JOSEPH S

ART UNIT PAPER NUMBER

3762

DATE MAILED: 07/01/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/982,666

Applicant(s)

TRUMBLE, DENNIS R.

Examiner

Joseph S. Machuga

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 1 is/are allowed.
- 6) ☐ Claim(s) 2,3,9 and 13 is/are rejected.
- 7) ☐ Claim(s) 4-8,10-12,14 and 15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 2, 3 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liotta (5456715) in view of Trumble (5479946) and Hutchins (4185617).

3. Liotta disclose a muscle energy converter having casing (a); fluid ports (11", 11"); a bladder type mechanism within the casing to hold fluid (best illustrated in figure 6A) and an actuator arm mechanism (1-6, 23-26.) The reference does not disclose the bellows or explicitly state that the arm mechanism is attached to the tendon.

4. Tremble teaches that it is desirable to attach a muscle energy converter to the tendon to provide a stable long lasting physical connection. This is accomplished by suturing the tendon to a patch of Dacron or Gortex (column 6 lines 1-8.)

5. Hutchins discloses a cardiac assist device that uses a bellows type pump to transfer fluid.

6. It would have been obvious to one of ordinary skill in the art to attach Liotta's device directly to a tendon given Trembles teaching that this provides a long lasting physical connection. To use a bellows type chamber instead of a bladder type fluid chamber in Liotta's device would have been obvious given Hutchins disclosure that this is a well know alternative and would offer less resistance than a bladder type assembly.

The method of claim 9 is considered provided for by this combination since the actuator arm assembly member 24 would rotate about a pivot point as clearly illustrated in figure 6A.

7. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liotta (5456715) in view of Tremble (5479946), Hutchins (4185617) and Norin (1905047).

8. Liotta disclose a muscle energy converter having casing (a); fluid ports (11", 11"); a bladder type mechanism within the casing to hold fluid (best illustrated in figure 6A) and an actuator arm mechanism (1-6, 23-26.) The reference does not disclose the bellows, roller bearing cam follower or explicitly state that the arm mechanism is attached to the tendon.

9. Tremble teaches that it is desirable to attach a muscle energy converter to the tendon to provide a stable long lasting physical connection. This is accomplished by suturing the tendon to a patch of Dacron or Gortex (column 6 lines 1-8.)

10. Norin teaches that a roller bearing cam follower assembly is an old and well know means to convert vertical reciprocal movement to horizontal reciprocal movement.

11. Hutchins discloses a cardiac assist device that uses a bellows type pump to transfer fluid.

12. It would have been obvious to one of ordinary skill in the art to attach Liotta's device to a tendon given Trembles teaching that this provides a long lasting physical connection. To use a bellows type chamber instead of a bladder type fluid chamber in Liotta's device would have been obvious given Hutchins disclosure that this is a well

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know alternative and would offer less resistance than a bladder type assembly. To use a roller bearing cam assembly to convert the vertical reciprocal movement of the arm assembly to horizontal reciprocal movement in place of the lever assembly 23 is considered obvious in view of Norin which teaches that this arrangement is old, well know and dependable alternative.

13. Claim 1 is allowable.

14. Claims 4-8, 10-12, 14 and 15 would be allowable if rewritten to include all of the limitations of the base claim and any intervening claims.

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Saunders et al, Cotton de Bennetot et al, Isaacson, Gao, Hill and Heilman et al are cited to show related blood pumps. Abramson, Rohr, Fischer, Harcourt, Grotness et al, Nomura et al and Ames are cited to show related actuating mechanisms.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph S. Machuga whose telephone number is 703-305-6184. The examiner can normally be reached on Monday-Friday; 6:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Angela D Sykes can be reached on 703-308-5181. The fax phone numbers for the organization where this application or proceeding is assigned are 703-306-4520 for regular communications and 703-306-4520 for After Final communications.

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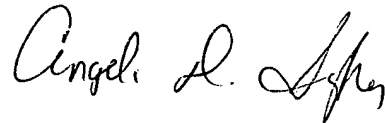
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1148.



Joseph S. Machuga  
Examiner  
Art Unit 3762

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June 25, 2003



ANGELA D. SYKES  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3700